

Claims

[c1] 1. A steer-by-wire steering system for steering one or more road wheels on a vehicle, said steering system comprising:
a steering input device rotatable by an operator to command steering of the one or more road wheels;
a steering input shaft mechanically connected to the steering input device and rotatable in response to rotation of the steering input device;
a support member disposed proximate the steering input shaft;
a male member provided on one of the steering input shaft and the support member;
a female receptacle provided on the other of the steering input shaft and the support member for receiving the male member, wherein the female receptacle comprises at least one stop position for limiting rotational travel of the steering input shaft; and
an actuator for rotating one or more wheels in the vehicle in response to rotation of the steering input device.

[c2] 2. The steering system as defined in claim 1, wherein said female receptacle comprises a slot and said male member comprises a pin.

[c3] 3. The steering system as defined in claim 2, wherein the slot is formed in the steering input shaft and the pin is provided on the support member.

[c4] 4. The steering system as defined in claim 3, wherein the pin is slidable within the slot and the support member prevents rotation of the pin.

[c5] 5. The steering system as defined in claim 1, wherein the support member comprises a steering column housing.

[c6] 6. The steering system as defined in claim 1, wherein said steering input device comprises a steering wheel.

[c7] 7. The steering system as defined in claim 1 further comprising a pinion shaft coupled to the actuator, wherein the pinion shaft is not mechanically linked to the steering input shaft.

[c8] 8. The steering system as defined in claim 7, wherein said actuator comprises an electric motor.

[c9] 9. A steer-by-wire steering system for steering one or more steerable members on a steered vehicle, said steering system comprising:
a steering input device rotatable by an operator to command steering of the one or more steerable members;
a steering input shaft mechanically connected to the steering input device and rotatable in response to rotation of the steering input device;
a support member disposed proximate the steering input shaft;
a male member provided on one of the steering input shaft and the support member;
a female receptacle provided on the other of the steering input shaft and the support member for receiving the male member, wherein the female receptacle comprises at least one stop position for limiting rotational travel of the steering input shaft; and
an actuator for actuating one or more steerable members in the vehicle in response to rotation of the steering input device.

[c10] 10. The steering system as defined in claim 9, wherein said female receptacle comprises a slot and said male member comprises a pin.

[c11] 11. The steering system as defined in claim 10, wherein the slot is formed in the steering input shaft and the pin is provided on the support member.

[c12] 12. The steering system as defined in claim 9, wherein the support member comprises a steering column housing.

[c13] 13. The steering system as defined in claim 12, wherein the male member is axially slid able in a channel formed in the housing and the channel prevents the male member from rotating.

[c14] 14. The steering system as defined in claim 9, wherein said steering input device comprises a steering wheel.

[c15] 15. The steering system as defined in claim 9, wherein the one or more

steerable members comprise one or more road wheels.

[c16] 16. A steering assembly for a steer-by-wire steering system for steering one or more road wheels of a vehicle, said steering assembly comprising:
a steering input device rotatable by an operator to command steering of one or more road wheels of the vehicle;
a steering input shaft mechanically connected to the steering input device and rotatable in response to rotation of the steering input device;
a support member disposed proximate the steering input shaft;
a male member provided on one of the steering input shaft and the support member; and
a female receptacle provided on the other of the steering input shaft and the support member for receiving the male member, wherein the female receptacle comprises at least one stop position for limiting rotational travel of the steering input shaft.

[c17] 17. The steering assembly as defined in claim 16, wherein said female receptacle comprises a slot and said male member comprises a pin.

[c18] 18. The steering assembly as defined in claim 16, wherein the slot is formed in the steering input shaft and the pin is provided on the support member.

[c19] 19. The steering assembly as defined in claim 16, wherein the support member comprises a steering column housing having a slot for retaining the male member so as to prevent rotation of the male member while allowing the male member to slide within the female receptacle.

[c20] 20. The steering assembly as defined in claim 16, wherein said steering input comprises a steering wheel.